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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,914	08/26/2003	Rajendra G. Kumashi	46107-0088	5764

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EXAMINER


ESTREMSKY, SHERRY LYNN

ART UNIT	PAPER NUMBER
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3681

DATE MAILED: 07/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/649,914	Applicant(s) KUMASHI ET AL.	
	Examiner Sherry L Estremsky	Art Unit 3681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8-26-03</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 8, 9, and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 8, line 5, "said pinion gears" is indefinite because only "a pinion gear" was previously claimed (line 3). It is not clear if the scope of claim 8 is intended to include one pinion gear or if it includes multiple pinion gears.

In claim 9, line 1, "said gear engagement area" is indefinite because it lacks antecedent basis. Note that claim 9 depends from claim 7, but the gear engagement area was first claimed in claim 8.

In claim 9, line 2, "said pinion gears" is indefinite because it lacks antecedent basis.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 3, 6, 7, 8, 11, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Skinner, U. S. Patent 1,874,646.

Skinner discloses a gear shaft 9 comprising a tubular body defining an axially extending cavity 11. The shaft has an outer surface best shown in figure 3, the outer surface having a first gear engagement area for rotatably supporting a gear 8, as shown in figures 1 and 2. A passage 13 extends from the cavity 11 to the gear engagement area.

(claim 1)

The tubular body includes first and second open ends communicating with the cavity 11 such that the cavity extends between the first end and the second end.

(claim 2)

The tubular shaft 9 also includes a second gear engagement area and a second passage 13 extending from the cavity to the second gear engagement area.

(claim 3)

The tubular body includes a first open end communicating with the cavity 11.

(claim 6)

As shown in figure 1, a differential assembly has a differential case 4 rotatable about an axis and a gear assembly partially submerged in a lubrication fluid.

Pinion shaft 9 is secured to the differential case so that it rotates with the case 4. The pinion shaft 9 includes first and second open ends configured to be submerged in the lubrication fluid as the differential case 4 rotates (the ends are configured to be submerged, with the actual submergence being dependent simply on the volume of fluid in the housing 18). An elongated cavity 11 extends between the first and second ends of the pinion shaft 9. A passage 13 extends between the elongated cavity 11 and an outer surface of the pinion shaft 9. Lubrication fluid is received by the elongated cavity 11 as the ends are submerged during rotation and passes from the elongated cavity outwardly through the passage 13.

(claim 7)

The outer surface includes a gear engagement area, and the passage 13 extends outwardly from the cavity 11 to the gear engagement area. The gear assembly includes a pinion gear 8 (includes two pinion gears 8) rotatably supported by the gear engagement area of the pinion shaft 9, and the lubrication fluid passing through the passage 13 forms a lubrication barrier between the gear engagement area and the pinion gear(s) 8.

(claim 8)

The differential assembly includes a set of spaced apart pinion gears 8 rotatably supported by the pinion shaft 9.

(claims 11 and 12)

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4, 5, 9, 10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skinner in view of Nogrady, Sr., U. S. Patent 2,899,845.

Skinner discloses a gear shaft and differential assembly as discussed above in the rejections of claims 1, 7, and 12, but does not disclose a recessed pocket in the gear engagement area.

Nogrady, Sr. discloses a gear shaft 36 in a differential assembly. A gear engagement area on the gear shaft 36 engages pinion 34 (35), and a passage 34a (35a) in the pinion supplies lubricating fluid to the outer surface of the gear shaft 36.

The outer surface of the gear shaft 36 includes a recessed pocket 36a in the gear engagement area.

(claims 4 and 13)

The recessed pockets 36a shown in figures 1 and 2 include a planar surface.

(claim 5)

As best shown in figure 1, the area between the recessed pocket 36a and the pinion gear 34 (35) forms a lubrication bath.

(claim 9)

Rotation of the pinions draws lubrication fluid from the lubrication bath to create a lubrication barrier between the pinion shaft 36 and the pinion gears 34 and 35.

(claim 10)

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Skinner to include recessed pockets in the gear engagement area of the gear shaft in view of Nogrady, Sr. because they, in combination with lubricating passages, insure lubrication of the pinion gears (Nogrady, Sr., column 3, lines 48-50).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent 1,150,777 (Leavitt) August 1915 - shows a gear shaft with a tubular body having an axially extending cavity, gear engagement areas, and passages extending from the cavity to the gear engagement areas. The figures appear to show recessed pockets in the gear engagement areas, but the specification describes oil grooves within the pinions.

U. S. Patent 1,895,384 (Lorimor) January 1933 - discloses a differential with a pinion shaft having recessed pockets with planar surfaces in the pinion engagement areas "whereby lubricant may be accumulated and distributed".

U. S. Patent 2,147,145 (Carlson et al.) February 1939 - discloses a differential with a pinion shaft having an elongated cavity extending to an open end of the shaft, a gear engagement area, a passage extending between the cavity and the gear engagement area, and what appears to be a recessed pocket in the gear engagement area where the passage meets the outer surface of the shaft.

U. S. Patent 3,539,035 (Wolkenstein) November 1970 - discloses a tubular gear shaft open on both ends with a cavity extending between the ends and passages extending between the cavity and gear engagement areas on the outer surface of the shaft.

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U. S. Patent 3,557,634 (Bixby) January 1971 - discloses a gear shaft with an axially extending cavity and passages extending from the cavity to the outer surface of the shaft.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sherry L Estremsky whose telephone number is (703) 308-2164. The examiner can normally be reached on Tuesday and Friday from 7:30 a.m. to 6:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor can be reached on (703) 308-0830. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SLE


SHERRY ESTREMSKY
PRIMARY EXAMINER
AU3681 7-20-04